



## DIVE WITH A PURPOSE

### MOBULA CITIZEN SCIENCE EXPEDITION

November 4-11, 2017  
\$2200 per person

Join the amazing crew of Quino El Guardián and Marine Biologists Marta D. Palacios and Frida Lara Lizardi on one of the most inspiring dive adventures of your life: **DEVIL RAYS** in the Sea of Cortez!

Once called **DEVIL RAYS** by fishermen, sailors, and explorers, the young and upcoming Marine Biologists call them **MOBULAS**. Scientific study is about observation, documentation, studying behavioral patterns, compiling data and then analysis.

Take part as much or as little as you like!

# QUINO

EL GUARDIÁN  
LIVE ABOARD

[QUINOELGUARDIAN.COM](http://QUINOELGUARDIAN.COM)

## THE TRIP OF A LIFETIME!

Join the amazing crew of The Quino el Guardian and Marine Biologists Marta D. Palacios and Frida Lara Lizardi on one of the most inspiring dive adventures: DEVIL RAYS in the Sea of Cortez!

Once called DEVIL RAYS by fishermen, sailors, and explorers, the young and upcoming Marine Biologists call them MOBULAS. Scientific study is about observation, documentation, studying behavioral patterns, compiling data and then analysis. That is what the Mobula Expedition is all about. You, Marta and Frida will answer:

**What do Mobulas eat?** Mobulas are filter feeders. We will observe their feeding behavior and take water samples from the Sea of Cortez to determine just what they eat.

**Where do Mobulas swim to and how far?** Right now Marta is tracking and collecting data on Mobulas through a network of acoustic receivers placed in Cabo Pulmo, Cerralvo Island, and Espiritu Santos.

**Why do Mobulas like Espiritu Santo so much?** Juveniles are drawn to Ensenada Grande, a shallow bay at Espiritu Santo Island. You will observe and collect data during your dives in the day and at night. Maybe the bay offers protection for feeding and growing?

### TO BOOK

SUSAN LONG

SLong@RocioDelMarLiveaboard.com  
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DORA SANDOVAL

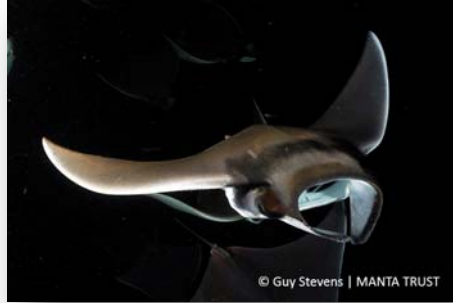
DSandval@RocioDelMarLiveaboard.com  
M (602)558-9580

All prices are quad occupancy  
and includes all taxes

## CHECK OUT what we will be doing to help answer these questions:

**Zooplankton tows** at different depths to identify the zooplankton community and look for the two main food sources of Mobulas

**Microplastic tows** at different points during the trip. Mobulas are filter feeders and are likely to ingest large quantities of plastic that are now endangering many species of marine life. Part of the expedition is to study the quantities and composition of plastic fragments found in the water.



**Visual census of Mobulas** to learn how to identify different species and observe their behavior. Observing and recording the amount of pregnant females, mating train formations, gender recognition, size, and mating scars.

**Photo-ID** to identify the species – bring your cameras! Notations on gender, size, and reproductive status.

**Visual census at Ensenada Grande** to collect data on the number, size, gender, and behavior patterns at night and day. We will search for previously tagged Mobulas that are easily visible to divers.

**Setting up Remote Underwater Video Stations** at night. We will install these cameras, equipped with lights, in different parts of the Ensenada Grande to record behavior and numbers of the mobulas when interacting with divers and how the behavior changes, if at all, when swimming without divers.

**Recover and replace some of the acoustic receivers** located in the area (to be determined).

## PRESENTATIONS INCLUDE

### Mobulids of the Gulf

How to identify them, characteristics, what we know, threats, conservation strategies. Presentation by Marta D. Palacios.

### Sharks in the Gulf of California

How to identify the different species, where can we find them in the Sea of Cortez, conservation problems. Presentation by Frida Lara Lizardi.

### Pelagios Kakunja studies with sharks in Cabo Pulmo

The recovery of top predators. Presentation given by Frida Lara Lizardi.

### The Lost Mantas of the Sea of Cortez

Manta birostris characteristics, how to identify them, migration, problems in the past and today's conservation. Presentation given by Marta D. Palacios.

## SCIENTISTS

### Marta D. Palacios Marine Biologist

Master Student at CICMAR-IPN, researching movements and habitat use of Mobulas around Espiritu Santo Archipelago in collaboration with the Monterey Bay Aquarium, Manta Trust and Pelagios Kakuna



### Frida Lara Lizardi Marine Biologist

Obtained her Masters Degree at the University of London. She has worked on research projects in the Gulf of Mexico, Caribbean Sea, Red Sea and Indian Ocean with particular interest in the behavior, conservation and management of sharks.

